



Capable Manpower Future Naval Capability

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S&T**

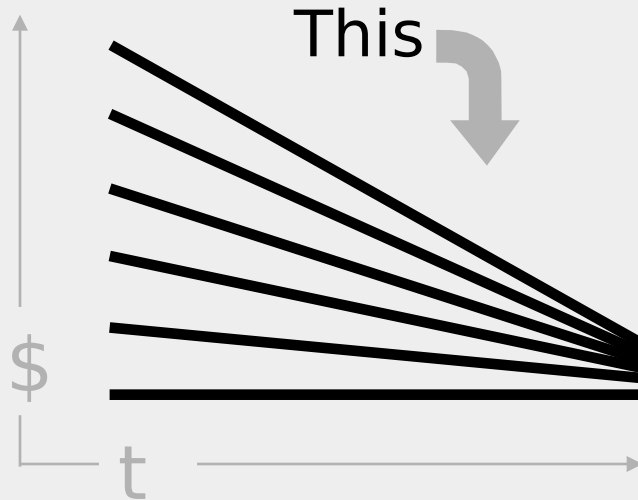
14 Feb 2002

ONR Mission

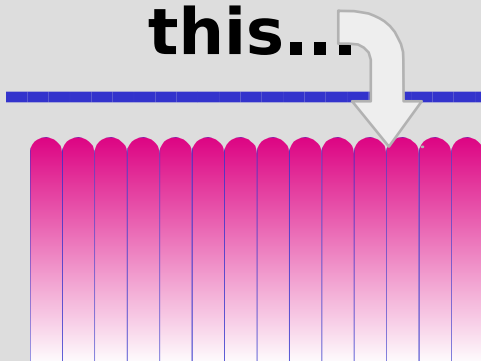
To provide the scientific and technological base that maintains and expands the technological superiority of the Navy and Marine Corps forces at reduced cost.

Why FNCs ?

Declining total research funding for a stable number of programs reduces programs below transition critical mass

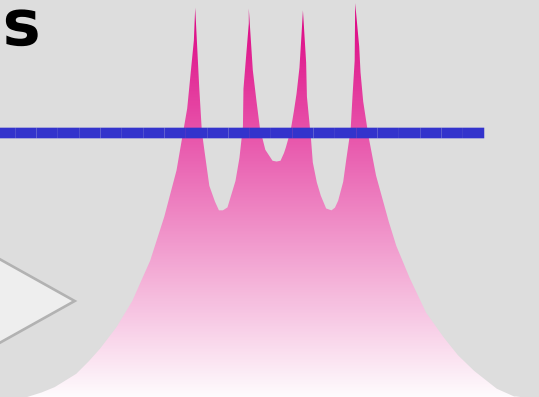


**means
this...**



**Critical
Mass**

**But we
need ...**





Future Naval Capabilities

- FNC funding:
 - Approximately \$540M (FY 02)
 - **Encompasses most of the 6.3 and about half of the 6.2 accounts**
- FNC's formally began in FY 02

Future Naval Capabilities

- FNCs focus on transition to acquisition programs and/or operational customers rather than technology.
- FNCs must have formal transition agreements
-- Developing new and more capable technologies cannot compromise the transition agreement.
- FNCs must deliver their products with the required capabilities, on time and within budget

FY02 FNC List



**Time Critical Strike
Missile Defense
Platform Protection
Littoral ASW
Organic Mine CM
Autonomous Operations
Total Ownership Costs
Knowledge Superiority &
Assurance
Littoral Combat & Power
Projection
Electric Warship & Combat
Vehicles**

Capable Manpower



Goal: Provide fully prepared Sailors and Marines fighting and winning in an information rich, distributed firepower battle-space using human-centered hardware and systems.

Requirements

**Mr. M. Henry, N1B,
Chair**

**Dr. M. Bailey, TECOM,
Co-Chair**

Dr. A. Zeman, N79

Execution

**Ms. J. Dickieson, ONR
34, Lead**

**Dr. Wallace Wulfeck II,
Deputy**

Fleet/Forces

**CAPT A. Koch, CPF N1
CAPT T. Sprague, CLF N1**

Acquisition

**RADM J. Townes III,
VCNET - Lead**

**COL J. Buranosky,
PMTRASYS - Co-Lead**

**RADM C. Hamilton,
PEO(S)**

Resources

**Mr. D.
Goldstein,
N911T, Lead**



CM FNC S&T Program Impacts

- Affects MPT, which is 60% of DoN Total Obligation Authority
- Affects over \$10B in acquisition programs
- Sponsor programmed transitions exceed \$150M

CM FNC is in alignment with and supports CNO's and CMC's top priorities

▪ **Manpower: “Win the War for People”**

▪ **Current Readiness**

▪ **Future Readiness**

▪ **Quality of Service**

▪ **Alignment**

▪ **Win Battles**

▪ **Make Marines**

S&T Program Content

- **CM FNC provides the S&T base for all manpower, personnel, & training (MPT) in DoN**
 - **New Modeling and Visualization Technologies**
 - **Performance Measures and Metrics**
 - **Virtual Training and Mission Rehearsal Environments**
 - **Advanced Distributed / Distance Learning**
 - **New Design Technologies to Achieve Reduced Manning**
- **Supports Naval Warfare Programs, e.g.,**
 - **Submarine, Cruise Missile, Naval Gun Programs**
 - **Battlegroup ASW operations**
- **Over 30% of program supports USMC**
 - **Expeditionary Warfare (e.g., AAV, LCAC)**
 - **Military Operations in Urban Terrain**
 - **Manpower and Personnel Systems**

Capable Manpower Future Naval Capabilities

Enabling Capabilities

Acquire

Recruit and retain Sailors and Marines for right billets at the right time - satisfying needs of Naval commands while providing challenging and personally rewarding career paths to the serviceman

Design

Design systems for warfighter performance enhancement, manpower workload reduction, and minimal training impact to accommodate the evolving Naval environment of optimized manning initiatives and increasing system complexity

Equip

Provide Sailors and Marines with the mission critical competencies essential to waging war and winning the Nation's battles through a continuous training and education process centered on the learning strengths of the individual at affordable cost

Capable Manpower Future Naval Capability

Supporting Technologies for the Enabling Capabilities

Capable Manpower:
CNO's "Priority 1"

"Acquire"

- **Whole Person Assessment**
- **Sailor/Marine Career Management System**
- **Personnel Situation Monitoring, Assessment, and Response Technology (P-**

"Design"

- **Advanced Interface Design/ Training Capability**

"Equip"

- **Advanced Distance & Distributed Learning (ADL)**
- **OJT & Maintenance Support for Individuals & Teams**
- **Virtual Technologies/ Environments (VIRTE)**
- **Visualization-based Training & support Systems**

Capable Manpower Future Naval Capab

Supporting Technologies for the Enabling Ca

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Design for Manpower Workload Reduction

Supporting Technology

Advanced Interface Design / Training Capability (AID/TC)

Human-centric design of next generation Tactical Tomahawk and integrated Tomahawk, LAM and NSFS land attack weapons control and planning system, to facilitate multi-task performance while maintaining manning at current levels. Identification of potential new skills required of future operators. Embedded training capability to help retain critical skills.

Problem: LAW Execution Complexity

**Employment Complexity = MPT
Complexity**

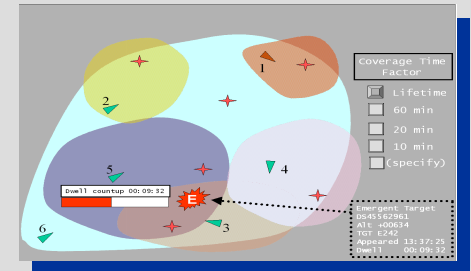
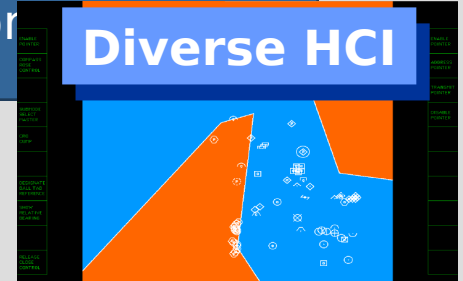
- New LAW Mission Requirements & Doctrine.
- CONOPs calls for employing multiple weapons.
- Time critical decision making Calls for Fire, In-Flight Control, etc.
- Multiple Roles within LA mission.
- System federated with diverse, existing HCIs from components.



**New
Weapons**



Diverse HCI



Manning Restrictions





**Data-Centric
Design**



**Task-Centric
Design**



Capable Manpower Future Naval Capabilities

Supporting Technologies for the Enabling Capabilities

Capable Manpower: CNO's "Priority 1"

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- Personnel Situation Monitoring, Assessment, and Response Technology (P-SART)

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Equip Sailors and Marines for

Success

Supporting Technologies

Advanced Distance and Distributed Learning (ADL)

Artificially intelligent authoring technologies and team training methods to build a web-based learning environment for Sailors and Marines that is student centered, offers high quality education and training, tailored to individual needs, delivered cost effectively, anywhere and anytime

Objective-based OJT and Maintenance Support for Individuals and Teams (OJT)

On-the-job training tools to support continuous learning and enhanced maintenance support; realistic scenario-based intelligent instruction

Visualization-based Training (VISTRA)

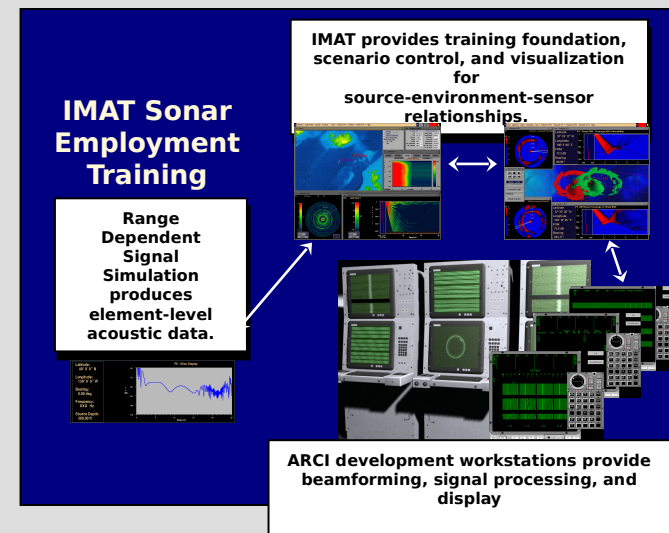
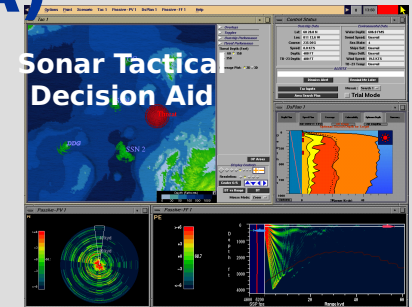
Multi-sensor, multi-platform tactical training and performance support systems for Undersea Warfare

Virtual Technologies / Environments (VIRTE)

Realistic combat simulators for missions/areas too dangerous, costly, or otherwise difficult in which to train

Visualization-based Training and Performance Support Systems (VISTRA)

- **Sonar TDA - Program-of-Record TDA for:**
 - All A-RCI submarines
 - SQQ89 A(V)15 and (V)15R ships
 - All IUSS assets
- **Sonar Employment Trainer**
- **Submarine Multi-Mission Team Trainer (SMMTT) Phase III**
 - Complete submarine attack center trainer
- **PC-IMAT**
 - 1700 CDs issued to subs, surface, air, METOC
 - IT-21 Qualified
- **IMAT.Explore**
 - CD-ROM and Web-Enabled Training
- **Common Propagation Engine (STAPLE)**
 - Latest OAML Models and Databases for sensor performance prediction
 - Over 300 times faster than current Fleet

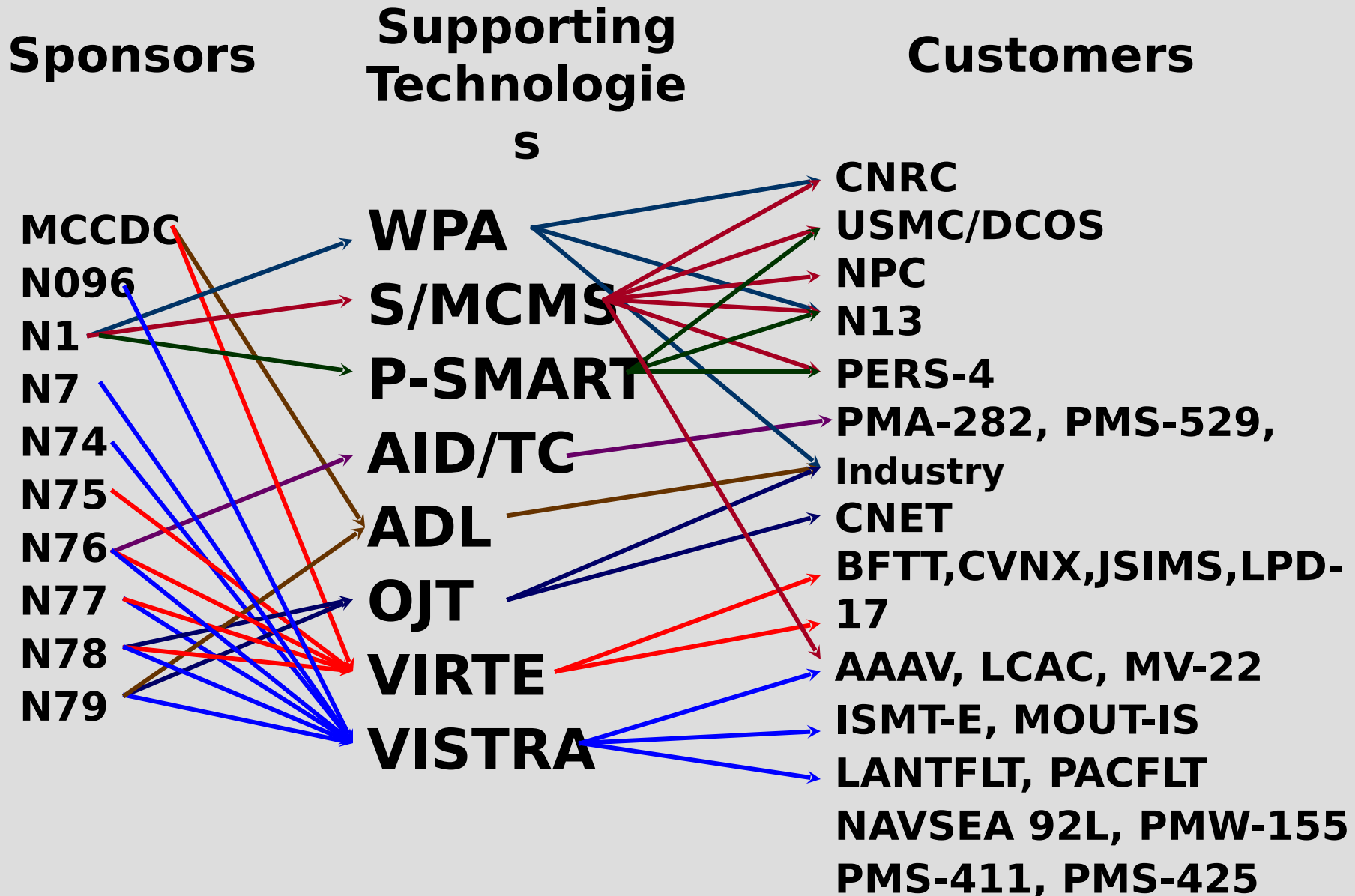


Virtual Technologies / Environments (VIRTE



- Prepares warriors and teams to win in direct contact with the enemy by training in battle skills, tactics, techniques, and procedures.
- Provides realistic combat simulators for a variety of missions as a supplement and complement to live training.
- Focuses on Navy and USMC warriors and small teams (the Human System rather than the weapons system) to increase performance in skills that are too dangerous, costly, or otherwise difficult to train in.
- Allows deployable near-real-time mission planning and rehearsal (using real-world intelligence products) in the expeditionary theater of operations.

Capable Manpower



* DD(X) -- potential for

Near-term Transitions

- **Sponsor programmed transitions exceed \$150M**
 - **RIDE/JOIN, Sailor/Marine Career Management System**
 - **Submarine A-RCI, SQQ-89, IUSS, SET/SMMTT, CFFC/CPF/N7 Fleet ASW Training Teams**
 - **AAAV, LCAC, DVTE, ISMT-E**
 - **Land Attack Missile, Naval Fires Support**
 - **CNET School and Deployed Training**



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